CLAIMS

1. A cutting insert including cubic boron nitride based ultra-high pressure sintered material exhibiting, in a structural observation using an electron microscope, a substantial three-phase structure including a continuously bonded phase, a hard dispersed phase, and an intermediate adhesion phase intervening between the continuously bonded phase and the hard dispersed phase, the cubic boron nitride based ultra-high pressure sintered material comprising:

titanium compound for forming the continuously bonded phase;

at least a nitride compound having titanium and aluminum, and tungsten carbide, for forming the intermediate adhesion phase; and

cubic boron nitride for forming the hard dispersed phase.

2. A cutting insert according to claim 1, wherein the cubic boron nitride based ultra-high pressure sintered material consisting of:

15 to 56 wt% of at least two components selected from titanium nitride, titanium carbonitride, and titanium carbide, or 15 to 56 wt% titanium carbonitride, for forming the continuously bonded phase;

2 to 10 wt% nitride compound having titanium and aluminum and 2 to 10 wt% tungsten carbide, for forming the intermediate adhesion phase; and

(35 to 65 wt%) cubic boron nitride, as the balance, for forming the hard dispersed phase.

3. A cutting insert according to claim 1, wherein the cubic boron nitride based ultra-high pressure sintered material consisting of:

20 to 37 wt% titanium nitride and/or titanium carbonitride, for forming the continuously bonded phase;

3 to 8 wt% inter-metallic compound having titanium and aluminum, 5 to 10 wt% nitride compound having titanium and aluminum, and 5 to 15 wt% tungsten carbide, for forming the intermediate adhesion phase; and

(35 to 55 wt%) cubic boron nitride, as the balance, for forming the hard dispersed phase.

4. A cutting insert according to claim 1, wherein the cubic boron nitride based ultra-high pressure sintered material consisting of:

10 to 32 wt% titanium nitride and/or titanium carbonitride, and 5 to 10 wt% tantalum carbide, for forming the continuously bonded phase;

3 to 8 wt% inter-metallic compound having titanium and aluminum, 5 to 10 wt% nitride compound having titanium and aluminum, and 5 to 15 wt% tungsten carbide, for forming the intermediate adhesion phase; and

(35 to 55 wt%) cubic boron nitride, as the balance, for forming the hard dispersed phase.

5. A cutting insert according to claim 1, wherein the cubic boron nitride based ultra-high pressure sintered material consisting of:

10 to 32 wt% titanium nitride and/or titanium carbonitride, and 5 to 10 wt% niobium carbide, for forming the continuously bonded phase;

3 to 8 wt% inter-metallic compound having titanium and aluminum, 5 to 10 wt% nitride compound having titanium and aluminum, and 5 to 15 wt% tungsten carbide, for forming the intermediate adhesion phase; and

(35 to 55 wt%) cubic boron nitride, as the balance, for forming the hard dispersed phase.

6. A cutting insert according to claim 1, comprising, on the surface thereof, a titanium nitride layer having average film thickness of 0.5 to 5 μm as a use-of-insert indication layer.